

Burroughs Corporation



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TENTATIVE DATA SHEET

ELECTRONIC COMPONENTS DIVISION

Plainfield, New Jersey

NIXIE[®] TUBE DIMMING MODULE TYPE BIP-8661

The BIP-8661 is a NIXIE Tube Dimming Module that interrupts the voltage supply to the indicator at a fixed rate but variable duty cycle. This module is designed to operate from either a 200V or 250V supply and drive several NIXIE Tubes or circuit modules using NIXIE Tubes. Control over the brightness is achieved through the use of either a potentiometer or a multi-position switch. A separate input for complete blanking is also provided.

ELECTRICAL CHARACTERISTICS (25°C) (Note 5)

CONTROL INPUTS

Blanking Input (Note 1)	
Voltage to Blank	+3 to +15 V
Voltage to Unblank	-6 to +5 V
Current to Blank	+3 to +16 ma
Current to Unblank	-1.6 to +1 ma

Dimming Input Resistance (Notes 2 and 3)

At maximum duty cycle	10 Meg ohm
At minimum duty cycle	1 K ohm

OUTPUT, CONDITION I (Note 4)

On Voltage	+190 to +210 V
Off Voltage	+80 to 109
Load Current, On Condition	0 to 150 mA
Load Current, Off Condition	0 to 20 mA
Duty Cycle at Full Brightness	77 to 97%
On Time at Minimum Brightness	125 μ sec. Min
Frequency	55 to 105 cps (80 nom)

OUTPUT, CONDITIONS II (Note 4)

On Voltage	233 to 265 V (250 nom)
Off Voltage	80 to 109 V
Load Current, On Condition	0 to 150 mA
Load Current, Off Condition	0 to 14 mA
Duty Cycle at full Brightness	77 to 97%
On Time at Minimum Brightness	100 μ sec. Min.
Frequency	80 to 120 cps (100 nom)

POWER INPUT, CONDITION I

Supply Voltage (Note 6)	192 to 210 V (200 nom)
Current at 200V	10 to 160 mA

POWER INPUT, CONDITION II (Note 7)

Supply Voltage	235 to 265 V (250 nom)
Current at 250V	13 to 163 mA

MECHANICAL SPECIFICATIONS

OPERATING TEMPERATURE	-20 to +85°C
WEIGHT	3.36 oz. max.

NOTES

1. Maximum NIXIE tube turn-off time from beginning of blanking pulse is 13 ms. Maximum NIXIE tube turn-on time measured from end of blanking pulse is 13 ms.
2. Due to the pulsed light characteristics of the human eye, a non-linear response occurs between the duty cycle of the light source and the intensity as seen by the eye. This characteristic is approximated by a logarithmic taper of the resistance controlling the pulse width. Approximate values are:

Nominal Brightness (Full on = 100%)	Nominal Duty Cycle %	Nominal Resistance (ohms)
99	97	7.5M
95	87	2.7M
75	50	1.5M
50	25	820K
25	9	390K
17	6	175K
8	3	60K
2	1	0

3. The total shunt capacitance introduced as a result of the wiring needed to operate the dimming control remotely shall not exceed .01 μ f. It is recommended that the leads to and from the dimming control be shielded to prevent any coupling of signals to other circuits.
4. The limiting factor in determining the maximum output loading is the power dissipation in the output stage during maximum dimming. Care should be taken to account for all loading under these conditions and not have it exceed the specified output current.
5. In conjunction with the dimming module, radioactive NIXIE Tubes and suitable keep-alive should be used to insure proper ionization of the tubes.
6. The module does not include power supply decoupling. Switching current transients equal to the maximum specified power supply current will exist at the B+ terminal.

Technical drawing of a component showing three views: front, top, and side.

Front View: A rectangular plate with a width of 6.425 and a height of 2.015. It features two holes on the left side, each with a diameter of .156. The distance between the centers of the holes is 1.500. The distance from the bottom hole to the bottom edge is .257. The distance from the top hole to the top edge is .062. The distance from the left edge to the center of the top hole is .188. The distance from the left edge to the center of the bottom hole is .375.

Top View: A rectangular plate with a width of 6.425 and a depth of 1.500. It features two holes on the left side, each with a diameter of .156. The distance between the centers of the holes is 1.500. The distance from the bottom hole to the bottom edge is .257. The distance from the top hole to the top edge is .062. The distance from the left edge to the center of the top hole is .188. The distance from the left edge to the center of the bottom hole is .375.

Side View: A rectangular plate with a height of .700. It has a thickness of .031 and a width of .257. The drawing includes various dimension lines and labels.

The schematic diagram illustrates a video amplifier circuit. Key components and their values are as follows:

- Power Input:** Connected to a 2-terminal input.
- Blanking Input:** Connected to a 5-terminal input, with a note indicating a voltage range of +3V MIN. to +0.5V MAX. when ON.
- Transistors:** Q1, Q2, Q3, Q4, Q5, Q6, Q7, and Q8 are used throughout the circuit.
- Resistors:** R1 (150K), R2 (845Ω), R3 (487Ω), R4 (2200Ω), R5 (10K), R6 (4220Ω), R7 (6800Ω), R8 (2K), R9 (91K), R10 (10 MEG. REMOTE), R11 (10K), R12 (2K), R13 (82K), R14 (30K), R15 (2.2 MEG.), R16 (1K), and R17 (3K).
- Capacitors:** C1 (.82μf), C2 (.04μf), C3 (100μf), C4 (5μf), and C5 (15μf).
- Diodes:** CR1, CR2, CR3, and CR4.
- Other Components:** A variable capacitor (60) and a remote control input (3) are also shown.

NIXIE[®] TUBE DIMMING CIRCUIT BIP-866I